Notice of Allowability	Application No.	Applicant(s)	
	10/559,891	TRAVIS, ADRIAN ROBERT LEIGH	
	Examiner	Art Unit	
	ROBERT E. CARTER III	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to *Amendment filed on 06/26/2010*.

2. ☒ The allowed claim(s) is/are *1-3, 6, 8, 11-14, and 17*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All b) ☐ Some* c) ☐ None of the:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Response to Amendment

The amendment filed on 08/19/2008 has been entered and considered by the examiner.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with L. Alan Collins on 09/07/2010.

The application has been amended as follows:

Please replace claim 1 with the following amended version of claim 1:

1. An illuminator system for a display, comprising:

a slab waveguide disposed behind a back face of the display, wherein the slab waveguide is linearly tapered along a Y-axis of the back face of the display, and wherein the slab waveguide is substantially co-extensive with the back face of the display across the Y-axis and across an X-axis of the back face of the display, wherein the Y-axis and the X-axis are perpendicular to each other, and wherein the slab waveguide comprises a thick end and an opposing thin end that are each substantially parallel to the X-axis;

a triangular input wedge that is a part of and that protrudes from the thick end of the slab waveguide;

an input face of the triangular input wedge that is substantially co-extensive with the back face of the display along the X-axis;

a plurality of *N* light arrays wherein each light array is configured to provide light that is substantially co-extensive with the back face of the display along the X-axis;

a linear taper of the input face of the triangular input wedge that, in combination with an angle relative to the input wedge of incoming light from an I^{th} light array of the plurality of *N* light arrays, is configured to direct the incoming light from the I^{th} light array to emerge from a face of the slab waveguide over only an I^{th} portion of *N* portions of the back face of the display, wherein each of the *N* portions is substantially co-extensive with the back face of the display along the X-axis, and wherein each of the *N* portions are a different portion of the back face of the display than any other of the *N* portions;

an illuminator system controller configured to synchronize with a controller of the display wherein the illuminator system controller turns off a previously turned-on light array of the plurality of *N* light arrays and turns on the I^{th} light array of the plurality of *N* light arrays in response to the controller of the display writing to a corresponding I^{th} portion of *N* corresponding portions of the display, and wherein the illuminator system does not utilize any display image data.

Please replace claim 12 with the following amended version of claim 12:

12. A method for illuminating a flat-panel display, comprising:

injecting light from a plurality of *N* light arrays into an input linear wedge of a slab waveguide that is disposed behind a back face of the display, wherein the slab waveguide is linearly tapered along a Y-axis of the back face of the display, and wherein the slab waveguide is substantially co-extensive with the back face of the display across the Y-axis and across an X-axis of the back face of the display, wherein the Y-axis and the X-axis are perpendicular to each other, and wherein the slab waveguide comprises a thick end and an opposing thin end that are each substantially parallel to the X-axis, and wherein the input linear wedge is a part of and protrudes from the thick end of the slab wave guide, and wherein each light array of the plurality of *N* light arrays provides light that is substantially co-extensive with the back face of the display along the X-axis; and

wherein the injecting light comprises turning off a previously turned-on light array of the plurality of *N* light arrays and turning on an I^{th} light array of the plurality of *N* light arrays in response to writing to a corresponding I^{th} portion of *N* portions of the display, wherein an input face of the input linear wedge is substantially co-extensive with the back face of the display along the second axis and substantially parallel to the X-axis, and wherein a linear taper of the input face of the input linear wedge, in combination with an angle relative to the input wedge of the I^{th} light array of the plurality of *N* light arrays, directs incoming light from the I^{th} light array to emerge from a face of the slab waveguide over only an I^{th} portion of *N* portions of the back face of the display, and wherein each of the *N* portions of the back face of the display is substantially co-extensive with the back face of the display along the X-axis, and wherein each of the *N*

portions of the back face of the display are a different portion of the back face of the display than any other of the *N* portions of the back face of the display, and wherein the method for illuminating does not utilize any display image data.

The following is an examiner's statement of reasons for allowance:

The present invention is directed to an illuminator system for a flat panel display.

Claim 1, identifies the uniquely distinct features:

"a plurality of *N* light arrays wherein each light array is configured to provide light that is substantially co-extensive with the back face of the display along the X-axis;

a linear taper of the input face of the triangular input wedge that, in combination with an angle relative to the input wedge of incoming light from an I^{th} light array of the plurality of *N* light arrays, is configured to direct the incoming light from the I^{th} light array to emerge from a face of the slab waveguide over only an I^{th} portion of *N* portions of the back face of the display, wherein each of the *N* portions is substantially co-extensive with the back face of the display along the X-axis, and wherein each of the *N* portions are a different portion of the back face of the display than any other of the *N* portions;

an illuminator system controller configured to synchronize with a controller of the display wherein the illuminator system controller turns off a previously turned-on light array of the plurality of *N* light arrays and turns on the I^{th} light array of the plurality of *N* light arrays in response to the controller of the display writing to a corresponding I^{th}

portion of *N* corresponding portions of the display, and wherein the illuminator system does not utilize any display image data"

Claim 12, identifies the uniquely distinct features:

"wherein each light array of the plurality of *N* light arrays provides light that is substantially co-extensive with the back face of the display along the X-axis; and

wherein the injecting light comprises turning off a previously turned-on light array of the plurality of *N* light arrays and turning on an I^{th} light array of the plurality of *N* light arrays in response to writing to a corresponding I^{th} portion of *N* portions of the display, …and wherein a linear taper of the input face of the input linear wedge, in combination with an angle relative to the input wedge of the I^{th} light array of the plurality of *N* light arrays, directs incoming light from the I^{th} light array to emerge from a face of the slab waveguide over only an I^{th} portion of *N* portions of the back face of the display, and wherein each of the *N* portions of the back face of the display is substantially co-extensive with the back face of the display along the X-axis, and wherein each of the *N* portions of the back face of the display are a different portion of the back face of the display than any other of the *N* portions of the back face of the display, and wherein the method for illuminating does not utilize any display image data."

The closest prior art, Irwin (US Patent # 4,978,952) teaches an image display system with a tapered waveguide (Fig. 2, #20), a plurality of *N* light arrays (Figs. 2, 6,

#25) providing light to the waveguide along a X-axis of the display and emerging from the display along the X-axis (Figs. 3 & 4), and a liquid crystal shutter (Fig. 2, #30) in front of the waveguide. Irwin further teaches scanning the plurality of *N* light arrays in both the horizontal and vertical directions (Col. 5, lines 16-32).

However, Irwin does not teach the N light arrays corresponding to an N number of different portions of the shutter, or the system turning off a previously turned on light array. Furthermore, Irwin scans in the horizontal direction as well as the vertical direction, meaning the lights in the I^{th} light array will be turned on over time rather than all at once when writing to a corresponding I^{th} portion of the display. Lastly, the display system of Irwin relies on the plurality of light arrays to provide color image data to complete the displayed image, while claim 1 explicitly states that the illuminator system does not utilize any display image data.

Sakaguchi et al. (US Patent # 6,448,951) teaches an image display system with a tapered waveguide (Fig. 4, #18), a plurality of *N* light arrays (Fig. 4, 3A [LEDs B/L#0 - B/L#2], 3B [LEDs B/L#3 - B/L#5], 3C [LEDs B/L#6 - B/L#8]) providing light to the waveguide along a Y-axis of the display, and a liquid crystal display (Fig. 1, #3) in front of the waveguide.

Sakaguchi et al. further teaches light from the I^{th} light array to emerging from a face of the slab waveguide over only an I^{th} portion of *N* portions of the back face of the display (Fig. 4, 3A, 3B, 3C), wherein each of the *N* portions is substantially co-extensive

with the back face of the display along the X-axis, and wherein each of the *N* portions are a different portion of the back face of the display than any other of the *N* portions;

an illuminator system controller configured to synchronize with a controller of the display wherein the illuminator system controller turns off a previously turned-on light array of the plurality of *N* light arrays and turns on the I^{th} light array of the plurality of *N* light arrays in response to the controller of the display writing to a corresponding I^{th} portion of *N* corresponding portions of the display, and wherein the illuminator system does not utilize any display image data (Col. 5, line 45 – Col. 6, line 2).

However, Sakaguchi et al. does not teach the plurality of illuminators being positioned along the X-axis or providing light to the waveguide along the X-axis.

Furthermore, Sakaguchi et al. teaches a field sequential backlighting system which does not utilize any display image data, while Irwin teaches a horizontal and vertical scanning color-mixed backlighting system that provides a portion of image data to the display. Because these systems are so vastly different, any attempt to combine them to meet all the claim limitations of claims 1 or 12 would destroy one or both references in the process. For example. if one were to attempt to use the driving scheme of Sakaguchi et al., which teaches:

1) corresponding light arrays and display portions

2) turning off a previously turned on light array

3) not using the illuminator to provide any display image data

in the structure of Irwin, the display functionally of Irwin would be destroyed because it requires the illuminator to provide a portion of the image data.

Therefore the prior art, either singularly or in combination, fails to anticipate or render the above limitations of claims 1 or 12 obvious.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT E. CARTER III whose telephone number is (571)270-3006. The examiner can normally be reached on 9AM - 5:30PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/R.E.C./